

08CN8803-25

**REMARKS**

Claim: 1 - 11 and 13 - 33 are pending in the present application. Claims 16, 30, 32, and 33 have been amended to address informalities such as "a" versus "an". Claims 1 and 8 have been amended to remove the term "rigid", and Claim 33 has been amended to remove the limitation of surface roughness. Claims 34 - 38 have been added to further claim the present invention. Support for the new claims and for the amendment to Claim 1 can be found in Paragraphs 0031 and 0051, and in the Figures. These amendments, if anything, broaden and do not narrow the claims. No new matter has been added by these amendments.

Claims 16, 30, 32, and 33 have been objected to as comprising informalities. These claims have been amended to address the informalities. Reconsideration and withdrawal of these objections are respectfully requested.

Claims 1 - 11 and 13 - 33 have been rejected under 35 U.S.C. §112, first paragraph, as allegedly not being enabling for "storage tape or ribbon" while enabling for "disc". The claims are directed to a data storage media. (Preamble of the claims) Data storage media are supported by the specification and claims. The claims are enabled as drafted and similarly would be enabled for a preamble of "an article". The preamble is merely intended to identify the type of claim and not to limit the claim. With respect to a "storage tape", if it has all of the features enumerated in the body of the claim, it is covered by the claim; if it does not comprise all of the elements of the body of the claim, it is not covered by the claim. For instance, if the storage tape doesn't have "a tilt of about 1° or less, measured in a resting state, wherein said tilt is selected from the group consisting of radial tilt and tangential tilt" or "a magnetic data layer disposed on a plastic film", it is not covered by Claim 1. Applicants contend that the limitations of the claims are fully enabled by the specification as originally filed. Reconsideration and withdrawal of this rejection are respectfully requested.

Claims 1 - 11 and 13 - 33 have been rejected under 35 U.S.C. §112, first paragraph, as allegedly based upon a disclosure that is not enabling. It is contended that "tilt and axial displacement are critical or essential properties of the invention, but are not enabled by the disclosure..." because "applicants have not recited the test method used to measure these properties and the examiner does not deem them to be art recognized." (Paper 1, page 3). Applicants respectfully disagree. Both tilt and axial displacement are terms commonly known and understood in the art and are "art recognized". Tilt is a standard measurement of an angle

08CN8803-25

from the horizontal plane. Unlike a measurement where different measurement techniques produce totally different results, the only information needed to determine the tilt is the measurement state, i.e., at rest or spinning at a certain rate. Since the application clearly states "a tilt of about 1° or less, *measured in a resting state*", this qualification is clearly set forth. (Claim 1; Paragraph 0031; emphasis added) Consequently, the disclosure is enabling and the claims meet the requirements of 35 U.S.C. §112. Reconsideration and withdrawal of this rejection are requested.

Claims 1 – 11 and 13 – 33 have been rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. With respect to Claims 1, 20, 21, and 31 – 33, the phrase "less than about 10 Å" and, in Claims 2 – 4, 10, and 11, the phrase "at least about", allegedly renders the claims indefinite because the metes and bounds are ill defined. The Examiner contends, for example, that the phrase "less than X", meaning any value less than X, excluding X, is well defined if X is well defined. If X is not well defined, then the phrase is indefinite because it is unclear which values are to be excluded from the range." (Paper 4, page 4). Applicants respectfully disagree with this rejection.

Since removal of the term "about" is stated as sufficient to overcome this rejection (see Paper 4, page 4), the basic concern appears to be that the term "about" is allegedly indefinite. The PTO's basis for the indefiniteness rejections based on the term "about" seems to be founded in *Amgen, Inc. vs. Chugai Pharmaceutical Co.*, 927 F2d 1200, 18 USPQ2d 1016 (Fed. Cir. 1991))" (hereinafter *Amgen*). However, the facts and issues present in *Amgen* are not applicable to the instant application.

*Amgen* involved an appeal of a district court decision in which claims of a U.S. Patent were held invalid as being indefinite for inclusion of the limitation "at least about 160,000" in relation to an 'activity' determined by a bioassay relied upon in the claim. According to the Court:

The District Court found that "bioassays provide an imprecise form of measurement with a range of error" and that use of the term "about" 160,000 IU/AU, coupled with the range of error already inherent in the specific activity limitation, served neither to distinguish the invention over the close prior art... nor to permit one to know what specific activity values... if any, might constitute infringement.

08CN8803-25

(Id at 1219

Further, the Court noted that the statute requires:

[t]he specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

and that:

[a] decision as to whether a claim is invalid under this provision requires a determination whether those skilled in the art would understand what is claimed. See *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 624, 625, 225 USPQ 634 641 (Fed. Cir. 1985) (Claims must "reasonably apprise those skilled in the art" as to their scope and be "as precise as the subject matter permits.").

In affirming the District Court ruling, the Court agreed that because the term "about" in this instance "gives no hint as to which mean value...constitutes infringement", the term "at least about" renders the claims to be invalid for indefiniteness. However, in arriving at this conclusion the Court also cautioned:

our holding that the term "about" renders indefinite claims 4 and 6 should not be understood as ruling out any and all uses of this term in patent claims. It may be acceptable in appropriate fact situations, e.g., *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1557, 220 USPQ 303, 316 (Fed Cir. 1983) ("use of 'stretching... at a rate exceeding about 10% per second' in the claims is not indefinite"), even though it is not here.

As stated above, the facts of *Amgen* are not applicable to the instant rejection of Claims 1 – 4 10, 11, 20, 21, and 31 – 33. In *Amgen* the uncertainty in defining the limitation at issue is borne of the error inherent in the test itself. In the present situation, however, the limitation recited in the claims, e.g., "less than about 10Å" is directed to the measurement of a size. The recited measurements are specific and clearly understood. Unlike the bioassay at issue in *Amgen*, the measurement of size, modulus, coercivity and displacement, for example, do not carry the same or a similar level of uncertainty as to the result. Similar to a measurement of time, the measurements at issue are definite. In *W.L. Gore & Assocs., Inc. v. Garlock, Inc.* it was noted that the term "exceeding about 10% per second could clearly be assessed through the use of;

08CN8803-25

stopwatch."(emphasis added) and the mere inclusion of "about" does not render a claim invalid.

Thus, given the precision and accuracy with which one skilled in the art can determine the elements specified in the present application, those skilled in the art would certainly understand the limitations recited in Claims 1 - 4, 10, 11, 20, 21, and 31 - 33. These claims reasonably apprise one skilled in the art as to the scope, i.e., the "metes and bounds" of the claimed invention, in as precise a term as is required by 35 U.S.C. §112, second paragraph.

Claims 1, 8, and 32 have further been rejected as allegedly indefinite because, allegedly, "the term 'rigid' is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention." (Paper 4, page 4) Applicants respectfully disagree. As is well understood, the applicant may be his own lexicographer. Terms must be sufficiently defined so that the claims distinctly claim the subject matter which the applicant regards as the invention. Throughout the specification Applicants describe the characteristics of the storage media. It is clear to one of ordinary skill in the art that the criteria described in the specification, e.g., axial displacement and the like, set forth what is meant by the term "rigid". However, since the term rigid is an unnecessary adjective, Applicants have removed it from the claims as requested by the Examiner.

Claims 1 - 11, 13 - 18, 21 - 30, 32, and 33 allegedly "recite limitations that require the storage media to be a disk..., yet there is no antecedent basis for the *a disk shaped media*." (Paper 4, page 5; emphasis added) Applicants respectfully disagree. "a disk shaped media" are not words found in those claims; hence antecedent basis for these particular terms is not needed and, besides, how can antecedent basis be set forth for terms that don't exist in the claims? The claims require that a specific tilt requirement be met, e.g., "*the storage media has a tilt...*" (Claim 1) "storage media" finds antecedent basis earlier in the claim and "tilt" does not need antecedent basis since it is set forth as "a".

Considering that the terms "less than about" and "at least about" are clear and definite, that the term "rigid" is a term that is understood from the specification and since that term has been removed from the claims, and finally since "a disk shaped media" is not in the claims and therefore does not require antecedent basis, the claims meet the requirements of 35 U.S.C. §112,

08CN8803-25

second paragraph. Therefore, Applicants respectfully request reconsideration and withdrawal of this rejection.

Claim 30 has been rejected under 35 U.S.C. §102(b) as allegedly anticipated by, or, in the alternative, under 35 U.S.C. §103(a) as allegedly obvious over U.S. Patent No. 5,447,767 to Tanabe et al; or over U.S. Patent No. 4,363,844 to Lewis et al.; or under 35 U.S.C. §102(e) as allegedly anticipated by, or, in the alternative, under 35 U.S.C. §103(a) as allegedly obvious over U.S. Patent No. 6,347,016 B1 to Ishida et al.

For each of the main references, Tanabe et al., Lewis et al., and Ishida et al., the Examiner contends that each of these references teaches a metal substrate, a plastic film, a data layer disposed on the plastic film, wherein the data layer can be at least partly read from, written to, or a combination thereof by at least one energy field, wherein the energy field comprises at least one of an electric field or a magnetic field. The Examiner further alleges that "[i]n addition to the... disclosed limitations, the presently claimed property of the tilt measured in the resting state would have obviously been present because the prior art product is substantially identical in structure..." (Paper 4, pages 6 – 7, 15, and 20 – 21) Applicants respectfully disagree that the present claims are anticipated or obvious, or that the claimed property of tilt is inherent.

Tanabe et al. is directed to optical recording media, methods for production thereof, substrates therefore, and methods of production of those substrates. In addressing the problem of the effects or birefringence of forming grooves for tracking on an optically clear disk, they claim the production of preformat reproduction signal with uniformity and high contrast. They teach forming an electroconductive layer on a substrate with a photoresist thereon. The photoresist is exposed to light and is developed to uncover the electroconductive layer. An electrodeposit layer is then formed on the uncovered electroconductive layer. (Col. 7, lines 30 – 60) Tanabe et al. do not teach, discuss, or mention tilt; radial or tangential.

Lewis et al. are directed to metallized information carrying discs. Lewis et al. admit that significant changes have occurred with "the introduction of the laser to the industry, a new information storage system has been developed..." (Col. 1, lines 31 – 51) They teach a process where at least one surface of a substrate has a polymeric composition and a reflective or conductive coating before embossing. They disclose an embossing process to make discs from these blanks. (Col. 1, lines 55 – 65) Lewis et al. fail to teach, discuss, or mention tilt; radial or tangential. Actually, to the contrary, Lewis et al. teach that flatness is not necessary. (Col. 6,

08CN8803-25

line 10) In other words, Lewis et al. fail to teach tilt, and, based upon the teachings of Lewis et al., one of ordinary skill in the art would not believe that tilt is relevant.

Ishida et al. disclose a master information carrier formed using a photoresist. The lithographical development of the photoresist forms discontinuous islands of photoresist over which metal is deposited. (Figures 1 and 12a - 12c; Col. 19) Ishida et al. teach that the substrate "has flexibility to a certain extent so that the surface of the master information carrier can compensate a fine wimple or bending..." (Col. 21, lines 16 - 22) As with Lewis et al. and Tanabe et al., Ishida et al. fail to teach or discuss tilt. To the contrary, based upon the teachings of Ishida et al. that the substrate has flexibility, an artisan would not believe that tilt is relevant.

To anticipate a claim under 35 U.S.C. §102, a single source must contain all of the elements of the claim. *Lewmar Marine Inc. v. Barient, Inc.*, 827 F.2d 744, 747, 3 USPQ2d 1766, 1768 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 1007 (1988). Even if all of the elements are not expressly stated in a single reference, a claim may be anticipated if non-disclosed elements would have been inherent in the prior art. However, it is well settled that "anticipation of inventions set forth in product claims cannot be predicated on mere conjecture respecting the characteristics of products that might result from the practice of processes disclosed in references." *Phillips Petroleum Co. v. U.S. Steel Corp.*, 673 F. Supp. 1278, 6 USPQ2d 1065, 1076-77 n.12 (D. Del. 1987), *aff'd*, 865 F.2d 1247, 9 USPQ2d 1461 (Fed. Cir. 1989); *W.L. Gore & Associates Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *appeal after remand*, 842 F.2d 1275, 6 USPQ2d 1277 (Fed. Cir. 1988). Instead, a "feature is inherent if it naturally occurs under the conditions set forth in the reference..." *Consolidated Aluminum Corp. v. Foseco International Ltd.*, 10 USPQ2d 1143, 1165 (N.D. Ill. 1988).

The Examiner concedes that the references do not teach a claimed limitation while, at the same time, stating that the references anticipate the present invention by inherency. However, anticipation by inherency only happens if the anticipating elements (1) are necessarily present and (2) one of ordinary skill in the art recognize or appreciate the inherent element. See, e.g., *Galaxo Inc. v. Novopharm Ltd.*, 52 F.3d 1043, 1046 (Fed. Cir. 1995). Moreover, inherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. *Continental Can Co. v. Monsanto*, 948 F.2d 1264, 1269 (Fed. Cir. 1991). The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic.

08CN8803-25

*In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 215 USPQ 323, 326 (CCPA 1981). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 169 F.3d 743, 747, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) Furthermore, "in relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)" MPEP 2112

First, a basis in fact and/or technical reasoning that reasonably supports the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art has not been supplied. A mere allegation that the property is present because the products are allegedly substantially identical in structure (see Paper 4, page 7) does not constitute a "basis in fact and/or technical reasoning". As is clearly evident from the amount of art in this field, from the huge advances in storage capacity, quality, and media longevity in the storage media industry in the last 25 years, unless a feature is specified, it cannot be considered inherent. For example, merely because a group of media have substrates, data layers, reflective layers, dielectric layers, and protective layers in no way means that the media are "identical in structure". The composition, location, geometry, size, and manner of forming the various layers and substrate can all be factors in rendering all of the media substantially different from one another. The industry has advanced from floppy discs to hard discs, from records, cassettes and the like to CD's, laser discs, and DVD's. Slight changes in a CD, e.g., reading from the surface of the disc instead of through the disc, enabled a significant increase in storage capacity. Adjustment of the wavelength of the read laser and/or the reflectivity of the reflective layer enabled the use of two data layers, essentially doubling storage capacity. There are numerous papers and patents about how to put the data layers on the discs, e.g., photoresists. Patents discuss how to reduce birefringence, improve readability and reproducibility. Many of these patents focus on changes

08CN8803-25

that, in hindsight, may appear insignificant but which were substantial and have advanced the technology to where DVD's are becoming as common as VCR's in average homes. Advances and inventions must be considered at the time of the invention, not in hindsight. Particularly in this field, a period of as little as one year can bring a substantial change in the industry. What was impossible, even unthinkable, one year is commonplace a year later.

Applicants have identified several characteristics, including tilt, microwaviness, roughness, and the like, which enables further advancement of the storage media technology. No single reference teaches or suggests the significance or presence of many of these features. Even if the understanding of the industry of these, and other features, has changed since the time of the present invention, such change does not effect the patentability of the present application. In other words, merely because a feature or characteristic may appear desirable today does not mean or ever suggest that it was desirable, understood, considered, or inherent at the time of the present application.

For example, with respect to tilt, as is stated above, its inherency in the prior art "may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *Id. In re Robertson*. In other words, the fact that an artisan could practice Tanabe et al., Lewis et al., and Ishida et al., and obtain a storage media that meets the characteristics described in those references, respectively, yet does not have a tilt of about 1° or less, proves that this feature is not inherent. This position is supported by the Declaration of Dr. Reitz, which is submitted herewith. Basically, attainment of the results espoused by these references is not dependent upon the tilt of the storage media. Actually, nothing in the references would lead one to believe that a tilt of about 1° or less, measured in a resting state wherein said tilt is selected from the group consisting of radial tilt and tangential tilt), is "inherent" or even a factor or consideration. The references have no need for such a restriction on the media. Furthermore, there is no basis for arguing that one of ordinary skill in the art would recognize that such a property would necessarily be present in the references.

Considering that anticipation requires that presence of each and every element of the present claims, that inherency requires more than probabilities or possibilities, that the tilt is not necessarily present, that the media of the references will work as described by the references at a tilt of greater than 1°, these references fail to anticipate the present claims. Reconsideration and withdrawal of these rejections are requested.



08CN8803-25

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a prima facie case of obviousness. *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Establishing a prima facie case of obviousness requires that all elements of the invention be disclosed in the prior art. *In Re Wilson*, 165 USPQ 494, 496 (C.C.P.A. 1970). For the reasons set forth above with respect to the rejections based upon 35 U.S.C. §102, Tanabe et al., Lewis et al., and Ishida et al., similarly fail to render the present claims obvious since these references fail to teach or suggest at least one element of the present claims, namely that the storage media have a tilt of about 1° or less. Reconsideration and withdrawal of these rejections are respectfully requested.

Claims 1 – 9, 15 – 18, 20 – 22, 24 – 26, 32, and 33 have been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Tanabe et al., in view of U.S. Patent No. 4,673,602 to Nakayama et al., U.S. Patent No. 6,194,045 B1 to Annacone et al., and U.S. Patent No. 5,972,461 to Sandstrom (this combination of references was referred to at “TNAS”). Claims 10 and 11 have been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over TNAS and further in view of U.S. Patent No. 6,156,422 to Wu et al. Claims 13, 14, and 29 have been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over TNAS and further in view of U.S. Patent No. 4,731,155 to Napoli et al. Claim 19 have been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over TNAS and further in view of U.S. Patent No. 4,659,407 to Lacotte et al. Claims 23, 27, 28, and 31 have been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over TNAS and further in view of U.S. Patent No. 5,875,083 to Oriki et al.

Claims 1 – 9, 14 – 28, and 31 – 33 have been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Lewis et al. in view of Nakayama et al., Annacone et al., and Sandstrom (this combination of references was referred to at “LNAS”). Claims 10 and 11 have been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over LNAS and further in view of Wu et al. Claims 13 and 29 have been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over LNAS and further in view of Napoli et al.

Claims 1 – 11, 14 – 17, 20, 21, 24 – 26, 32 and 33 have been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Ishida et al. in view of Annacone et al. and Sandstrom (this combination of references was referred to at “IAS”). Claims 13 and 29 have been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over IAS and further in view of Nakayama et al. and Napoli et al. Claims 18, 22, 23, 27, 28, and 31 have been rejected under 35 U.S.C.

08CN8803-25

§103(a) as allegedly unpatentable over IAS and further in view of Oniki et al. Claim 19 have been rejected under 35 U.S.C. §103(a) as allegedly unpatentable over IAS and further in view of Lacotte et al.

Nakayama et al. is relied upon as allegedly teaching that magnetic and optical recording are equivalent in the art based upon the Title and Col. 2, lines 9 – 15 of Nakayama et al. The Title states: 'Composite Substrate Plate For Magnetic Or Optical Disk And Process For Production Thereof'. Col. 2, lines 9 – 15 state that the primary object of Nakayama et al. is to provide a composite substrate plate for a magnetic or optical disk that has certain properties. As is explained in the declaration of Dr. Reitz, (submitted herewith), Nakayama et al.'s inference that particular substrates can be employed as optical substrates or magnetic substrates does not mean or teach an artisan a generalization that magnetic and optical substrates are interchangeable. Nakayama et al. do not state that such substrates are interchangeable, they only teach that a particular substrate may be useful as a magnetic or optical substrate.

Magnetic and optical media are read from and written to in different fashions and have different specifications, e.g., magnetic media are not concerned with birefringence while birefringence is a very important characteristic of an optical media. Further, a statement that a particular article can be used in a particular fashion in no way suggests that all articles can be used in that fashion or that the reverse of the statement is true. While magnetic hard disk substrates and optical disks may have certain characteristics in common (e.g., each having a substrate, data, ...) or may be used for a common purpose (data storage), they cannot be considered as equivalent. Employment of Nakayama et al. to teach that magnetic and optical substrates is unfounded. Reconsideration of the teachings of Nakayama et al. is requested.

In making a §103 rejection, the Examiner bears the burden of establishing a prima facie case of obviousness. *In re Fine*, 5 USPQ 2d 1596, 1598 (Fed. Cir. 1998). Establishing a prima facie case of obviousness requires that all elements of the invention be disclosed in the prior art. *In Re Wilson*, 165 USPQ 494, 496 (C.C.P.A. 1970). The Examiner "can satisfy his burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in art would lead that individual to combine the relevant teachings of the references". 11.

Considering that Nakayama et al. merely teach a specific substrate and suggest that their particular substrate may be useful in both the optical and magnetic media fields and fail to teach

08CN8803-25

or show that optical media and magnetic media are equivalents, Nakayama et al. fail to provide motivation to combine references directed to optical media with references directed to magnetic media. Nakayama et al. has been relied upon to provide the motivation to combine Tanabe et al., Lewis et al., and Ishida et al. with various other references. However, since Nakayama et al. fail to teach the equivalence relied upon in the Office Action (Paper 4, page 8), all of the proposed combinations are not valid and fail to establish a *prima facie* case of obviousness. These failed combinations include all of the combinations with TNAS and LNAS, as well as the combination of IAS with Nakayama et al. and Napoli et al.

It is further noted that, 35 U.S.C. §103 is very specific with respect to when an application can not be patented due to obviousness, requiring: "a patent may not be obtained... if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious *at the time the invention was made* to a person having ordinary skill in the art to which said subject matter pertains." (emphasis added) In other words, when, as here, the §103 rejection was based on selective combination of the prior art references to allegedly render a subsequent invention obvious, "there must be some reason for the combination other than the hindsight gleaned from the invention itself." *Id.* Stated in another way, "[i]t is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." *In re Fritch* 23 USPQ2d 1780, 1784 (Fed. Cir. 1992).

In addition to the above reasons for failure to establish a *prima facie* case of obviousness, Applicants further maintain that an improper standard of arriving at the rejection, based upon improper hindsight that fails to consider the totality of Applicants' invention and to the totality of the cited references, has been applied. More specifically the Examiner has used Applicants' disclosure to select portions of the cited references to allegedly arrive at Applicants' claimed invention. In doing so, the Examiner has failed to consider the teachings of the references or of Applicants' invention as a whole in contravention of §103, including the disclosures of the references which teach away from Applicants' invention. In applying §103, the U.S. Court of Appeals for the Federal Circuit has consistently held that one must consider both the invention and the prior art "as a whole", not from improper hindsight gained from consideration of the claimed invention. See, *Interconnect Planning Corp. v. Feil*, 227 USPQ 543, 551 (Fed. Cir. 1985) and cases cited therein.

08CN8803-25

Sandstrom discloses a "Rewritable Optical Data Storage Disk Having Enhanced Flatness". In order to attain the "enhanced flatness" and avoid process induced surface variations such as warpage and tilt, Sandstrom disclosed a substrate with increased thickness that is greater than or equal to approximately 1.5 mm and less than or equal to approximately 2.5 mm. (Title and Abstract and throughout the Specification) Although Sandstrom, in a general discussion of the art mention that substrate materials can comprise a variety of materials, the focus and overall teaching of Sandstrom, when read as a whole, is to increasing the thickness of a polycarbonate substrate in order to attain the desired physical and mechanical characteristics (flatness...). Clearly if you have a material and you increase its thickness it will be stronger and may then meet certain desired characteristics. In other words, merely because a 4 inch thick piece of wood can be used as a support beam does not mean that that material can be used at a thickness of 1/2 inches. Hence, due to Sandstrom's teachings as a whole, unless the thicknesses of Sandstrom will be met, there is no reason to believe the materials of Sandstrom can be employed. Since the other references do not discuss thickness or do not require such high thicknesses, an artisan would not combine Sandstrom with any of the other references of record as is suggested in the Office Action. This is further the case since the industry specifications for storage media do not allow the thicknesses taught by Sandstrom, and artisan would disregard the teachings of Sandstrom. Sandstrom fails to remedy all of the above discussed deficiencies of Tanabe et al., Lewis et al., Ishida et al., and Nakayama et al.

Annacone et al. disclose a "Rigid Disc Substrate Comprising a Central Hard Core Substrate With a Hard, Thermally and Mechanically Matched Overlying Smoothing Layer and Method for Making the Same". They focus on a disc having a hard central core with a smoothing layer. The core has a thickness of 0.012 inches (0.3048 mm) to 0.050 inches (1.27 mm), while the smoothing layer has a thickness of less than 40 microns. The smoothing layer is a layer "that can be polished to a very smooth surface finish." (Col. 4, lines 24 - 26) Annacone et al. fail to remedy all of the above discussed deficiencies of Tanabe et al., Lewis et al., Ishida et al., and Nakayama et al.

Wu et al. teach a high density magnetic recording medium with high HF and low MRT by employing particular layers with particular parameters. Wu et al. fail to remedy all of the above discussed deficiencies of Tanabe et al., Lewis et al., Ishida et al., and Nakayama et al.

08CN8803-25

Oniki et al. teach a magnetic disk having planarized CSS zone. They are relied upon to teach thickness values. (Paper 4, lines 14) However, the values discussed in Oniki et al. conflict with the specific teachings of the entire patent of Sandstrom. Clearly there is no motivation to combine these references and no expectation of success, particularly with the teachings of Sandstrom. Oniki et al. fail to remedy all of the above discussed deficiencies of Tanabe et al., Lewis et al., Ishida et al., and Nakayama et al.

Lacotte et al. teach a process for manufacturing optical disks by pressing. They teach forming the disks by using several sheets of thermoformable material film onto which the information is stamped. (Col. 3, lines 29 – 37) Lacotte et al. fail to remedy all of the above discussed deficiencies of Tanabe et al., Lewis et al., Ishida et al., and Nakayama et al.

Napoli et al. are directed to a process for forming a lithographic mask. They teach embossing, etching the valleys to remove resin and expose the substrate. (Col. 3, lines 60 – 68) They do not mention thicknesses, properties, or the ability of the resultant substrate to be used as a storage media. There is no reason why one of ordinary skill in the art of storage media would consider this reference or combine it with references related to storage media. Napoli et al. fail to remedy all of the above discussed deficiencies of Tanabe et al., Lewis et al., Ishida et al., and Nakayama et al.

Nakayama et al. are further relied upon to teach that a polymer film should have a glass temperature as high as possible in order to have excellent mechanical and surface properties. (Paper 4, pages 24 – 25) In the section cited by the Office Action, Nakayama et al. make a generic, non-enabling, sweeping statement that “[t]he resin which forms the surface layer is required to be excellent in spreadability, capable of exhibiting a glass transition point as high as possible after curing...” (Col. 3, lines 17 – 20) They fail to explain “as high as possible” to accomplish what purpose, and fail to define “high”. In the examples they fail to provide glass transition points and they heat the substrate to 150°C at most. (Col. 7, lines 15 – 18) Nakayama et al. fail to provide a motivation to combine and fail to remedy all of the above-discussed deficiencies of Tanabe et al., Lewis et al., and Ishida et al.

Again, even assuming that all elements of an invention are disclosed in the prior art, an Examiner cannot establish obviousness by locating references that describe various aspects of Applicants' invention without also providing evidence of the motivating force which would have impelled one skilled in the art to do what the patent applicant has done. *Ex parte Levengood*, 28

08CN8803-25

USPQ 1300 (13d. Pat. App. Int. 1993). It is not permissible to pick and choose among the individual elements of assorted prior art references to re-create the claimed invention, but rather "some teaching or suggestion in the references to support their use in the particular claimed combination 'is needed.'" *Symbol Technologies, Inc. v. Opticon, Inc.* 935 F.2d at 1576, applying *SmithKline Diagnostics, Inc. v. Helena Laboratories Corp.* 859 F.2d at 887. The references, when viewed by themselves, and not in retrospect, must suggest the invention. *In Re Skoll*, 187 USPQ 481 (C.C.P.A. 1975).

The present application teaches and claims a substrate having a surface roughness of less than about 10 Å, wherein the substrate has a thickness of up to about 1.2 mm, a plastic film, and a magnetic data layer disposed on said plastic film, wherein said magnetic data layer can be at least partly read from, written to, or a combination thereof by a magnetic field, and wherein the storage media has a tilt of about 1° or less, measured in a resting state, wherein said tilt is selected from the group consisting of radial tilt and tangential tilt. (Claim 1) The present application teaches and claims a media comprising a metal substrate, a plastic film, and a data layer disposed on the plastic film, wherein the data layer can be at least partly read from, written to, or a combination thereof by at least one energy field comprising at least one of an electric field and a magnetic field, and wherein the storage media has a tilt of about 1° or less, measured in a resting state, and wherein the tilt is selected from the group consisting of radial tilt and tangential tilt. (Claim 30) None of the references of record teach such a media. In the absence of hindsight and unsubstantiated assumptions, the media is non-obvious, novel and patentable. There is no motivation to combine the references of record to attain the claimed invention. The combinations suggested in the Office Action use the present application as a template to combine various references and fail to take into consideration the whole teachings of the references. Therefore no *prima facie* case of obviousness has been established.

As is established by the Declaration of an artisan, namely Dr. Reitz, the property of tilt is not inherent in Ishida et al. Lewis et al., and/or Tanabe et al. "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) Since the claimed

08CN8803-24

tilt is not "necessarily present", it is, by definition, not inherent in the media of these references. Furthermore, since Nakayama et al. fails to teach equivalency between optical and magnetic storage media as the Office Action contends, there is no motivation to combine references directed to optical storage media with those directed to magnetic storage media.

In summary, rejections based upon inherency are unfounded and incorrect since the media described by those references can be produced without the allegedly inherent property as is supported by the attached Declaration of Dr. Reitz. The rejections based upon 35 U.S.C. §103 are improper for failure to establish a *prima facie* case of obviousness. This failure is for at least one of the following reasons: (i) no motivation to combine, either due to lack of any suggestion in the prior art and/or because Nakayama et al. fail to teach that magnetic and optical media are equivalents; (ii) teaching away, such as the teaching of Sandstrom of the required thicknesses to attain the desired properties; and (iii) hindsight reconstruction using the present claims as a template. In view of the lack of motivation to combine, the impermissible use of hindsight, and the lack of inherency, that is, the failure to establish a *prima facie* case of obviousness, reconsideration and withdrawal of the rejections are requested.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and withdrawal of all of the objections and rejections and allowance of the case is requested.

08CN8803-25

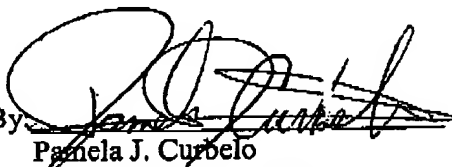
The Examiner is invited to call Applicants' Attorney to facilitate allowance of the present application.

If there are any charges with respect to this Amendment, or otherwise, please charge them to Deposit Account No. 07-0862 maintained by Assignee.

Respectfully submitted,

JOHN E. DAVIS ET AL.

CANTOR COLBURN LLP  
Applicants' Attorney

By   
Pamela J. Curbelo  
Registration No. 34,676  
Customer No. 23413

Date: August 28, 2002



08CN8803-25

MARKED UP VERSION OF THE CLAIMS: Please amend Claims 1, 8, 16, 30, 32 and 33 as follows, illustrated in a marked-up version:

1. (Twice Amended) A storage media for data, said media comprising:  
a ~~rigid~~-substrate having a surface roughness of less than about 10Å, wherein the substrate  
has a thickness of up to about 1.2 mm;

a plastic film; and

a magnetic data layer disposed on said plastic film;

wherein said magnetic data layer can be at least partly read from, written to, or a combination thereof by a magnetic field; and

wherein the storage media has a tilt of about 1° or less, measured in a resting state,  
wherein said tilt is selected from the group consisting of radial tilt and tangential tilt.

8. (Amended) The storage media as in Claim 1, wherein said ~~rigid~~-substrate  
comprises a glass substrate.

16. (Amended) The storage media as in Claim 1, wherein said plastic film comprises  
at least one thermoset resin, wherein the at least one thermoset resin is at least partially cured  
during a process to emboss surface features onto the at least one thermoset resin.

30. (Amended) A storage media for data, said media comprising:  
a metal substrate;  
a plastic film; and  
a data layer disposed on said plastic film;  
wherein said data layer can be at least partly read from, written to, or a combination  
thereof by at least one energy field;

wherein said energy field comprises at least one of an electric field, and a magnetic field;  
and

wherein the storage media has a tilt of about 1° or less, measured in a resting state,  
wherein said tilt is selected from the group consisting of radial tilt and tangential tilt.

08CN8803-25

32. (Amended) A storage media for data, said media comprising:  
a rigid substrate having a surface roughness of less than about 10Å;  
a plastic film; and  
an optical data layer disposed on said plastic film;  
wherein said data layer can be at least partly optically read from, written to, or a combination thereof; and  
wherein the storage media has a tilt of about 1° or less, measured in a resting state,  
wherein said tilt is selected from the group consisting of radial tilt and tangential tilt.

33. (Amended) A storage media for data, said media comprising:  
~~a glass substrate having a surface roughness of less than about 10 Å;~~  
an embossed plastic film comprising geographic locators, wherein said plastic film has a film thickness of up to about 20 μ; and  
an optical data layer disposed on said embossed plastic film;  
wherein, when said storage media is rotating, said data layer can be at least partly optically read from, written to, or a combination thereof.

GP2-0018C

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: JOHN DAVIS ET AL.

Serial No.: 09/683,114

Filed: November 20, 2001

For: DATA STORAGE MEDIA

) Group Art Unit: 1773

) Examiner: K. Bernatz

## DECLARATION PURSUANT TO 37 C.F.R. § 1.132

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

I, John Bradford Reitz, declare and state:

1. My educational background includes a B.S. in Chemistry from Furman University (1991), and a Ph.D. in Chemistry from Stanford University (1997).
2. I have been employed by the General Electric Company since 1999, where I am currently a chemist in the Polymer and Specialty Chemical Technologies Group.
3. I have worked in the area of data storage media for nearly 5 years.
4. I have read and understand U.S. Patent Application Serial No. 09/683,114 (hereinafter the "Patent Application").
5. I have read and understand U.S. Patent No. 5,447,767 to Tanabe et al., U.S. Patent No. 4,363,844 to Lewis et al., U.S. Patent No. 6,347,016 B1 to Ishida et al., and U.S. Patent No. 4,673,602 to Nakayama et al.
6. I have read and understand the Office Action for U.S. Patent Application Serial No. 09/683,114, Paper 4, (herein after "Office Action").

AUG 27 2002 17:42 FR COATINGS DIELECTRICS 518 387 7403 TO 8186028601 5 P.03

GP2-0018C

7. The heart of the rejections in the Office Action are based on inherency, namely that the feature of tilt being about  $1^\circ$  or less, measured in a resting state, is allegedly inherent in the media taught by Tanabe et al., Lewis et al., and Ishida et al.

8. From careful evaluation of the specification as well as the examples in Tanabe et al., Lewis et al., and Ishida et al., it is clear that they do not discuss tilt. Actually, they mention the relaxed standard they have in statements such as in Ishida et al. where it is stated that the substrate "has flexibility to a certain extent so that the surface of the master information carrier can compensate a fine wimple or bending..." (Col. 21, lines 16 - 22). This is further supported by Lewis et al. where they teach that flatness is not necessary. (Col. 6, line 10)

9. Storage media can be produced in accordance with Tanabe et al., Lewis et al., and Ishida et al., meeting the requirements and characteristics taught in those references, respectively, that has a tilt of greater than  $1.5^\circ$ . Actually, standard specifications for CD's, for example, allow a tilt of greater than  $1.5^\circ$ .

10. Many characteristics, and in particular the combination of characteristics, set forth in the Patent Application are not identified or addressed in any of the prior art of record. Examples of some of these characteristics include tilt, microwaviness, and roughness. The Patent Application identifies a unique product that meets certain characteristics, thereby allowing it to attain high aerial densities while being mass producible.

AUG 27 2002 17:42 FR COATINGS DIELECTRICS 518 387 7403 TO 818602860137 P.04

GP2-0018C

11. At the time of the Patent Application, an artisan would not have believed that Tanabe et al., Lewis et al., or Ishida et al. were teaching, requiring, or reciting a tilt of  $1^\circ$  or less. Actually, an artisan knows that the media taught in those references does not require such a characteristic to function and meet the specific characteristic taught in those references.

12. With respect to Nakayama et al., I, as one skilled in the art, as well as any other artisan, would not interpret that reference as teaching that optical and magnetic media are equivalent. To the contrary, it is very well understood that optical and magnetic media are not equivalent. Granted, some substrates can be manufactured to be used in either optical or magnetic applications, but those are very specific disks, not a generality. Generally, the contrary applies.

It is actually well known that, since these disks have such different requirements, e.g., the birefringence of the optical media is very important while irrelevant for magnetic media, a disk that is optimum in one area may not function in the other. Additionally, it is well known in the art that, compact disks (CDs), for example, generally have a surface roughness greater than 25 Angstroms ( $\text{\AA}$ ) since they are formed from stampers whose roughness values are about  $40\text{\AA}$ . However, magnetic media, namely first surface media will not function with surface roughnesses of greater than  $25\text{\AA}$ . Magnetic media substrates and optical media substrates are not equivalent and Nakayama et al. do not teach their equivalence. An artisan, particularly at the time of the Patent Application, would not combine a random sampling of optical media patents with some magnetic media patents, to attain the Patent Application.

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GP2-0018C

13. I further declare that all statements and representations made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements and representations were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued therefrom.

8/27/02  
Dated

John B Reitz  
John Bradford Reitz